NASA/TM—2000–209891, Vol. 94

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NASA/TM—2000–209891, Vol. 94

Technical Report Series on the Boreal Ecosystem-Atmosphere Study (BOREAS)

Forrest G. Hall, Editors

Volume 94

BOREAS Hardcopy Maps

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Jeffrey A. Newcomer, Raytheon ITSS, NASA Goddard Space Flight Center, Greenbelt, Maryland

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

September 2000

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NASA Center for AeroSpace Information
7121 Standard Drive
Hanover, MD 21076-1320
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National Technical Information Service
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Springfield, VA 22161
Price Code: A10

BOREAS Hardcopy Maps

Elizabeth Nelson, Jeffrey A. Newcomer

Summary

BOREAS hardcopy maps are a collection of approximately 1,000 hardcopy maps representing the physical, climatological, and historical attributes of areas covering primarily the Manitoba and Saskatchewan provinces of Canada. These maps were collected by BORIS and CCRS staff to provide basic information about site positions, manmade features, topography, geology, hydrology, land cover types, fire history, climate, and soils of the BOREAS study region. These maps are not available for distribution through the BOREAS project but may be used as an onsite resource. Information is provided within this document for individuals who want to order copies of these maps from the original map source.

Note that the maps are not contained on the BOREAS CD-ROM set. An inventory listing file is supplied on the CD-ROM to inform users of the maps that are available.

Table of Contents

1. Data Set Overview

1.1 Data Set Identification

BOREAS Hardcopy Maps

1.2 Data Set Introduction

BOReal Ecosystem-Atmosphere Study (BOREAS) hardcopy maps are a collection of approximately 1,000 hardcopy maps representing the physical, climatological, and historical attributes of areas covering primarily the Manitoba and Saskatchewan provinces of Canada. These maps were collected by BOREAS Information System (BORIS) and Canada Centre for Remote Sensing (CCRS) staff to provide basic information about site positions, manmade features, topography, geology, hydrology, land cover types, fire history, climate, and soils of the BOREAS study region. These maps

are not available for distribution through the BOREAS project but may be used as an onsite resource. Information is provided within this document for individuals who want to order copies of these maps from the original map source.

1.3 Objective/Purpose

The BOREAS Staff Science effort covered project-level activities requiring uniform data collection procedures across sites and time. Locating and acquiring various map-based information over the BOREAS study areas was included in this undertaking. The maps were acquired to provide basic information about the geographic position of manmade features and potential sites, topography, geology, hydrology, land cover types, fire history records, climate, and soils of the BOREAS study area. The maps were used in the planning and execution stages of the experiment in site selection and use, in aircraft mission planning, and for providing baseline information to investigators about the historical and physical characteristics of the area.

1.4 Summary of Parameters

The map types found in the BOREAS collection include Bedrock, Climate, Fire History, Forest Cover, Geochemistry, Soils, Surficial Geology, Topography, and Water Resources, primarily of the Manitoba and Saskatchewan provinces.

1.5 Discussion

BOREAS staff interacted with numerous scientists and agency representatives in finding the maps that exist in this collection. The maps in the collection were purchased with project funds and are copyrighted. Because this is copyrighted information, BORIS cannot copy or distribute the maps. Contact information about the various maps is provided in Section 7.3.4 of this document.

1.6 Related Data Sets

BOREAS Forest Cover Data Layers of the NSA in Raster Format
BOREAS Elevation Contours over the NSA and SSA in ARC/Info Generate Format
BOREAS HYD-08 DEM Data over the NSA-MSA and SSA-MSA in the UTM Projection
BOREAS Regional DEM in Raster Format and AEAC Projection

2. Investigator

2.1 Investigator Name and Title

BOREAS Staff Science

2.2 Title of Investigation

BOREAS Staff Science GIS Data Collection Program

2.3 Contact Information

Contact 1:

Beth Nelson
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Code 923
NASA GSFC
Greenbelt, MD 20771
(301) 286-4005
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Contact 2:
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Greenbelt, MD 20771
(301) 286-7858
(301) 286-0239 (fax)
Jeffrey.Newcomer@gsfc.nasa.gov

3. Theory of Measurements

The maps in the BOREAS collection were obtained from various sources. Map types and the original map sources are listed in detail in Section 7.3.4. Overall, the maps were derived and updated from interpretation of aerial photography and from ground surveys. Any details on the compilation and derivation for a particular map may be obtained by contacting the original map source.

4. Equipment

4.1 Sensor/Instrument Description
Unknown.

4.1.1 Collection Environment
Unknown.

4.1.2 Source/Platform
Unknown.

4.1.3 Source/Platform Mission Objectives
Unknown.

4.1.4 Key Variables
Bedrock, Climate, Fire History, Forest Cover, Geochemistry, Soils, Surficial Geology, Topography, and Water Resources.

4.1.5 Principles of Operation
Unknown.

4.1.6 Sensor/Instrument Measurement Geometry
Unknown.

4.1.7 Manufacturer of Sensor/Instrument
Unknown.

4.2 Calibration

4.2.1 Specifications
Unknown.

4.2.1.1 Tolerance
Unknown.

4.2.2 Frequency of Calibration
Unknown.

4.2.3 Other Calibration Information
Unknown.

5. Data Acquisition Methods

The BOREAS hardcopy maps were located and acquired from various sources by BOREAS staff at National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) and CCRS. Details on the map sources are given in Section 7.3.4 of this document.

6. Observations

6.1 Data Notes
None.

6.2 Field Notes
None.

7. Data Description

7.1 Spatial Characteristics

7.1.1 Spatial Coverage
The BOREAS map collection covers various portions of the Saskatchewan and Manitoba provinces as well as the entire Canadian region for some parameters. Details on specific coverage can be obtained by contacting the designated persons in Section 2.3 or by contacting the map sources given in Section 7.3.4.

The climatic map data cover the entire region of Canada, as does the topographic map index. All other maps cover areas in Universal Transverse Mercator (UTM) zone 13 and/or 14.

The North American Datum of 1983 (NAD83) corner coordinates of the overall BOREAS region, which includes both the Southern Study Area (SSA) and the Northern Study Area (NSA), are:

	Latitude	Longitude
Northwest	58.979 N	111.000 W
Northeast	58.844 N	93.502 W
Southwest	51.000 N	111.000 W
Southeast	50.089 N	96.969 W

The NAD83 corner coordinates of the BOREAS SSA are:

	Latitude	Longitude
Northwest	54.321 N	106.228 W
Northeast	54.225 N	104.237 W
Southwest	53.515 N	106.321 W
Southeast	53.420 N	104.368 W

The NAD83 corner coordinates of the NSA are:

	Latitude	Longitude
Northwest	56.249 N	98.825 W
Northeast	56.083 N	97.234 W
Southwest	55.542 N	99.045 W
Southeast	55.379 N	97.489 W

7.1.2 Spatial Coverage Map
Not available.

7.1.3 Spatial Resolution
The spatial resolution is specific to the scale of the individual maps.

7.1.4 Projection
The maps are in various projections and need to be referenced specifically for this information.

7.1.5 Grid Description
Not available.

7.2 Temporal Characteristics

7.2.1 Temporal Coverage
The original compilation and revision dates of the maps are specific to the individual map sheets.

7.2.2 Temporal Coverage Map
Not available.

7.2.3 Temporal Resolution
Not available.

7.3 Data Characteristics

7.3.1 Parameter/Variable
The maps in the collection provide information on the following features:

CLIMATE
FIRE HISTORY
FOREST COVER
GEOLOGY - BEDROCK
GEOLOGY - CHEMISTRY
GEOLOGY - PHOTOGRAPHY
GEOLOGY - QUATERNARY
GEOLOGY - SURFICIAL
FORESTRY - HYPSOMETRY
LAND CAPACITY
LAND COVER
LAND TYPE
OBSERVING STATIONS
PLANT COMMUNITY
RADIATION NETWORK
SOILS
SOIL CAPACITY

```
SOIL LANDSCAPE
SUNSHINE NETWORK
SYNOPTIC AND HOURLY STATIONS
TOPOGRAPHY INDEXES
TOPOGRAPHY
WATER RESOURCES
```

The parameters contained in the map inventory listing file on the CD-ROM are:

```
Column Name
------------------------------
PROVINCE
MAP_NAME
MAP_SUBJECT
SCALE
MAP_FORM
MAP_SOURCE
NW_LONGITUDE
NE_LONGITUDE
SE_LONGITUDE
SW_LONGITUDE
NW_LATITUDE
NE_LATITUDE
SE_LATITUDE
SW_LATITUDE
```

7.3.2 Variable Description/Definition

The descriptions of the parameters contained in the inventory listing file on the CD-ROM are:

Column Name	Description
PROVINCE	The Canadian province covered by the map. Examples include SASKATCHEWAN and MANITOBA.
MAP_NAME	The name of the map.
MAP_SUBJECT	The subject material covered by the map. Examples include GEOLOGY, FIRE, HISTORY, and FOREST COVER.
SCALE	The scale of the map. Examples include 1:24,000, 1:100,000, and 1:250,000.
MAP_FORM	The form in which the map data are stored. Examples include PAPER and DIGITAL
MAP_SOURCE	The source from which the map is available.
NW_LONGITUDE	The NAD83 based longitude coordinate of the northwest corner of the minimum bounding rectangle for the data.
NE_LONGITUDE	The NAD83 based longitude coordinate of the northeast corner of the minimum bounding rectangle for the data.
SE_LONGITUDE	The NAD83 based longitude coordinate of the southeast corner of the minimum bounding rectangle for the data.
SW_LONGITUDE	The NAD83 based longitude coordinate of the southwest corner of the minimum bounding rectangle for the data.

NW_LATITUDE	The NAD83 based latitude coordinate of the northwest corner of the minimum bounding rectangle for the data.
NE_LATITUDE	The NAD83 based latitude coordinate of the northeast corner of the minimum bounding rectangle for the data.
SE_LATITUDE	The NAD83 based latitude coordinate of the southeast corner of the minimum bounding rectangle for the data.
SW_LATITUDE	The NAD83 based latitude coordinate of the southwest corner of the minimum bounding rectangle for the data.

7.3.3 Unit of Measurement

The measurement units for the parameters contained in the inventory listing file on the CD-ROM are:

Column Name	Units
PROVINCE	[none]
MAP_NAME	[none]
MAP_SUBJECT	[none]
SCALE	[none]
MAP_FORM	[none]
MAP_SOURCE	[none]
NW_LONGITUDE	[degrees]
NE_LONGITUDE	[degrees]
SE_LONGITUDE	[degrees]
SW_LONGITUDE	[degrees]
NW_LATITUDE	[degrees]
NE_LATITUDE	[degrees]
SE_LATITUDE	[degrees]
SW_LATITUDE	[degrees]

7.3.4 Data Source

The source of the parameter values contained in the inventory listing file on the CD-ROM are:

Column Name	Data Source
PROVINCE	[Determined by BORIS staff from map information]
MAP_NAME	[Taken from the map sheet or derived by BORIS staff based on map content]
MAP_SUBJECT	[Determined by BORIS staff from map information]
SCALE	[Determined by BORIS staff from map information]
MAP_FORM	[Determined by BORIS staff]
MAP_SOURCE	[Determined by BORIS staff from map information]
NW_LONGITUDE	[Determined by BORIS staff from map information]
NE_LONGITUDE	[Determined by BORIS staff from map information]
SE_LONGITUDE	[Determined by BORIS staff from map information]
SW_LONGITUDE	[Determined by BORIS staff from map information]
NW_LATITUDE	[Determined by BORIS staff from map information]
NE_LATITUDE	[Determined by BORIS staff from map information]
SE_LATITUDE	[Determined by BORIS staff from map information]
SW_LATITUDE	[Determined by BORIS staff from map information]

The original sources for the various maps are:

Map Theme	Scale(s)	Source
Climate (All Canada)	Unknown	Atmospheric Environment Service Information Branch 4905 Dufferin Street Downsview, Ontario CANADA M3H 5T4
Forestry Canada (Manitoba)	1:15,840	Forestry Branch Manitoba Natural Resources 300-530 Kenaston Boulevard Winnipeg, Manitoba CANADA R3N 1Z4
Forestry Canada (Saskatchewan)	1:12,500	Saskatchewan Environment & Resource Management Forest Inventory Forests and Lands Branch Box 3003, McIntosh Mall Prince Albert, Saskatchewan CANADA S6V 6G1
Fire History	1:250,000	Forestry Branch Manitoba Natural Resources 300-530 Kenaston Boulevard Winnipeg, Manitoba CANADA R3N 1Z4
Forest Cover (Manitoba)	1:15,840	Forestry Branch Manitoba Natural Resources 300-530 Kenaston Boulevard Winnipeg, Manitoba CANADA R3N 1Z4
Forest Cover (Manitoba)	1:31,680	Forestry Branch Manitoba Natural Resources 300-530 Kenaston Boulevard Winnipeg, Manitoba CANADA R3N 1Z4
Forest Cover (Saskatchewan)	1:12,500 1:1,000,000	Saskatchewan Environment & Resource Management Forest Inventory Forests and Lands Branch Box 3003, McIntosh Mall Prince Albert, Saskatchewan CANADA S6V 6G1
Forest Cover (Saskatchewan)	1:50,000 1:125,000 1:300,000	Agriculture Canada Land Resources Research Centre K.W. Neatby Building Central Experimental Farm Ottawa, Ontario CANADA K1A 0C6

Geology - Bedrock (Manitoba)	1:1,000,000	Manitoba Energy and Mines Publication and Information 555-330 Graham Avenue Winnipeg, Manitoba CANADA R3C 4E3
Geology - Bedrock (Saskatchewan)	1:250,000	Saskatchewan Research Council Resources Division 15 Innovation Boulevard Saskatoon, Saskatchewan CANADA S7N 2X8
Geology - Bedrock (Saskatchewan)	1:1,000,000	Saskatchewan Energy and Mines Marketing and Publications 1914 Hamilton Street, 3rd Floor Regina, Saskatchewan CANADA S4P 4V4
Geology - Bedrock (Saskatchewan)	1:1,267,200	Saskatchewan Research Council Geological Division 15 Innovation Boulevard Saskatoon, Saskatchewan CANADA S7N 2X8
Geology-Chemistry (Manitoba)	1:250,000	Energy, Mines, and Resources Geological Survey of Canada Publications Office 601 Booth Street Ottawa, Ontario CANADA K1A 0E8
Geology-Photography (Manitoba)	1:125,000	Energy, Mines, and Resources Geological Survey of Canada Publications Office 601 Booth Street Ottawa, Ontario CANADA K1A 0E8
Geology-Quaternary (Saskatchewan)	1:250,000	Saskatchewan Energy and Mines Marketing and Publications 1914 Hamilton Street, 3rd Floor Regina, Saskatchewan CANADA S4P 4V4
Geology-Surficial (Manitoba)	1:250,000	Energy, Mines, and Resources, Canada Geological Survey of Canada Publications Office 601 Booth Street Ottawa, Ontario CANADA K1A 0E8
Geology-Surficial (Manitoba)	1:1,000,000	Manitoba Energy and Mines Publication and Information 555-330 Graham Avenue Winnipeg, Manitoba CANADA R3C 4E3

Geology-Surficial (Saskatchewan)	1:250,000	Saskatchewan Research Council Resources Division 15 Innovation Boulevard Saskatoon, Saskatchewan CANADA S7N 2X8
Geology-Surficial (Saskatchewan)	1:300,000	Agriculture Canada Land Resources Research Centre K.W. Neatby Building Central Experimental Farm Ottawa, Ontario CANADA K1A 0C6
Forestry-Hypsometry (Saskatchewan)	1:1,000,000	Energy, Mines, and Resources, Canada Surveys and Mapping Branch Canada Map Office 615 Booth Street Ottawa, Ontario CANADA K1A 0E9
Land Capacity (Forested) (Saskatchewan)	1:250,000	Information Canada Ottawa, Ontario CANADA K1A 0S9
Land Capacity (Forested) (Saskatchewan)	1:250,000	F.R.S.C. Queen's Printer and Controller of Stationery Ottawa, Ontario CANADA
Land Capacity (Forested) (Saskatchewan)	1:250,000	Energy, Mines, and Resources, Canada Surveys and Mapping Branch Canada Map Office 615 Booth Street Ottawa, Ontario CANADA K1A 0E9
Land Capacity (Wilderness) (Saskatchewan)	1:250,000	Energy, Mines, and Resources, Canada Surveys and Mapping Branch Canada Map Office 615 Booth Street Ottawa, Ontario CANADA K1A 0E9
Land Capacity (Wilderness) (Saskatchewan)	1:250,000	Information Canada Ottawa, Ontario CANADA K1A 0S9
Land Cover (AVHRR image based) (Saskatchewan) (Manitoba)	1:1,000,000	Surveys and Mapping Branch Manitoba Natural Resources 1007 Century Street Winnipeg, Manitoba CANADA R3H 0W4

Land Type (Manitoba)	1:250,000	Office of Canada Manitoba Soil Survey Department of Soil Science Ellis Building University of Manitoba Winnipeg, Manitoba CANADA R3T 2N2
Observing Stations	Unknown	Atmospheric Environment Service Information Branch 4905 Dufferin Street Downsview, Ontario CANADA M3H 5T4
Radiation Network	Unknown	Atmospheric Environment Service Information Branch 4905 Dufferin Street Downsview, Ontario CANADA M3H 5T4
Plant Community (Saskatchewan)	1:50,000	Agriculture Canada Land Resources Research Centre K.W. Neatby Building Central Experimental Farm Ottawa, Ontario CANADA K1A 0C6
Soils (Saskatchewan)	1:50,000 1:300,000	Agriculture Canada Land Resources Research Centre K.W. Neatby Building Central Experimental Farm Ottawa, Ontario CANADA K1A 0C6
Soils (Saskatchewan)	1:125,000 1:126,720	Saskatchewan Soil Survey 5C26 Agriculture Building University of Saskatchewan Saskatoon, Saskatchewan CANADA S7N 0W0
Soil Capacity (Agriculture) (Saskatchewan)	1:250,000	Saskatchewan Soil Survey 5C26 Agriculture Building University of Saskatchewan Saskatoon, Saskatchewan CANADA S7N 0W0
Soil Landscape (Saskatchewan) (Manitoba)	1:1,000,000	Agriculture Canada Land Resources Research Centre K.W. Neatby Building Central Experimental Farm Ottawa, Ontario CANADA K1A 0C6

Sunshine Network (All Canada)	Unknown	Atmospheric Environment Service Information Branch 4905 Dufferin Street Downsview, Ontario CANADA M3H 5T4
Synoptic and Hourly Stations (All Canada)	Unknown	Atmospheric Environment Service Information Branch 4905 Dufferin Street Downsview, Ontario CANADA M3H 5T4
Topography Indexes	All	Energy, Mines, and Resources, Canada Surveys and Mapping Branch Canada Map Office 615 Booth Street Ottawa, Ontario CANADA K1A 0E9
Topography Maps (Saskatchewan) (Manitoba)	1:50,000 1:125,000 1:250,000	Energy, Mines, and Resources, Canada Surveys and Mapping Branch Canada Map Office 615 Booth Street Ottawa, Ontario CANADA K1A 0E9
Water Resources (Saskatchewan)	1:250,000 1:1,000,000	Environment Canada Water Resources Branch 75 Farquhar Street Guelph, Ontario CANADA N1H 3N4

7.3.5 Data Range

The following table gives information about the parameter values found in the inventory table on the CD-ROM.

Column Name	Minimum Data Value	Maximum Data Value	Missng Data Value	Unrel Data Value	Below Detect Limit	Data Not Cllctd
PROVINCE	ALBERTA	SASKATCHEWAN	None	None	None	None
MAP_NAME	N/A	N/A	None	None	None	None
MAP_SUBJECT	N/A	N/A	None	None	None	None
SCALE	1:1,000,000	1:12,500	None	None	None	None
MAP_FORM	N/A	N/A	None	None	None	None
MAP_SOURCE	N/A	N/A	None	None	None	None
NW_LONGITUDE	-112.00002	-96.00016	None	None	None	None
NE_LONGITUDE	-110.00099	-90.00001	None	None	None	None
SE_LONGITUDE	-110.0009	-90.00006	None	None	None	None
SW_LONGITUDE	-112.00003	-96.00016	None	None	None	None
NW_LATITUDE	50.00000	60.00022	None	None	None	None
NE_LATITUDE	49.25003	60.00022	None	None	None	None
SE_LATITUDE	48.99998	59.00019	None	None	None	None
SW_LATITUDE	48.99998	59.0002	None	None	None	None

```
Minimum Data Value -- The minimum value found in the column.
Maximum Data Value -- The maximum value found in the column.
Missng Data Value  -- The value that indicates missing data. This is used to
                      indicate that an attempt was made to determine the
                      parameter value, but the attempt was unsuccessful.
Unrel Data Value   -- The value that indicates unreliable data.  This is used
                      to indicate an attempt was made to determine the
                      parameter value, but the value was deemed to be
                      unreliable by the analysis personnel.
Below Detect Limit -- The value that indicates parameter values below the
                      instruments detection limits.  This is used to
                      indicate that an attempt was made to determine the
                      parameter value, but the analysis personnel determined
                      that the parameter value was below the detection
                      limit of the instrumentation.
Data Not Cllctd    -- This value indicates that no attempt was made to
                      determine the parameter value.  This usually
                      indicates that BORIS combined several similar but
                      not identical data sets into the same data base table
                      but this particular science team did not
                      measure that parameter.

Blank -- Indicates that blank spaces are used to denote that type of value.
N/A   -- Indicates that the value is not applicable to the respective column.
None  -- Indicates that no values of that sort were found in the column.
--------------------------------------------------------------------------------
```

7.4 Sample Data Record

A sample data record for the hardcopy maps is not applicable.The following are wrapped versions of the first few records from the hardcopy maps inventory table on the CD-ROM:

```
PROVINCE,MAP_NAME,MAP_SUBJECT,SCALE,MAP_FORM,MAP_SOURCE,NW_LONGITUDE,
NE_LONGITUDE,SE_LONGITUDE,SW_LONGITUDE,NW_LATITUDE,NE_LATITUDE,SE_LATITUDE,
SW_LATITUDE
'MANITOBA','T 75 R04 W','FC AUX','15840','PAPER','MNR-FB',-98.08332,-97.92575,
-97.92809,-98.08531,55.54781,55.54653,55.46055,55.46182
'MANITOBA','T 75 R05 W','FC AUX','15840','PAPER','MNR-FB',-98.23855,-98.08131,
-98.08332,-98.24021,55.5478,55.54672,55.46055,55.46162
'MANITOBA','T 76 R04 W','FC AUX','15840','PAPER','MNR-FB',-98.08331,-97.92573,
-97.92808,-98.08532,55.63508,55.6338,55.54781,55.54908
```

8. Data Organization

8.1 Data Granularity

The maps can be obtained singly or in groups by contacting the sources indicated in Section 7.3.4.

8.2 Data Format

Each map varies in its size, format, and projection.

The CD-ROM inventory listing file consists of numerical and character fields of varying length separated by commas. The character fields are enclosed with single apostrophe marks. There are no spaces between the fields.

9. Data Manipulations

9.1 Formulae

9.1.1 Derivation Techniques and Algorithms
Not available.

9.2 Data Processing Sequence

9.2.1 Processing Steps
BORIS staff processed the maps by:

- Extracting geographic coordinate, scale, and thematic information from the maps and placing it in an American Standard Code for Information Interchange (ASCII) file on disk
- Reading the ASCII information in the disk file and loading the online data base with needed information

9.2.2 Processing Changes
None.

9.3 Calculations

9.3.1 Special Corrections/Adjustments
None.

9.3.2 Calculated Variables
None.

9.4 Graphs and Plots
None.

10. Errors

10.1 Sources of Error
Each of the map suppliers should be contacted regarding any errors in the maps.

10.2 Quality Assessment
Each of the map suppliers should be contacted regarding any quality information.

10.2.1 Data Validation by Source
Unknown.

10.2.2 Confidence Level/Accuracy Judgment
Unknown.

10.2.3 Measurement Error for Parameters
Unknown.

10.2.4 Additional Quality Assessments
Unknown.

10.2.5 Data Verification by Data Center

BORIS staff visually inspected at the maps to assess that they did in fact seem to depict the parameters listed but did not perform any ground checks of the accuracy. The inventory and description of the maps was deemed accurate.

11. Notes

11.1 Limitations of the Data

Individuals desiring to use the maps must acquire their own copies through the sources provided in Section 7.3.4.

11.2 Known Problems with the Data

None.

11.3 Usage Guidance

None.

11.4 Other Relevant Information

Not available.

12. Application of the Data Set

The maps can be used as visual references or can be digitized to create digital data sets for computer analyses.

13. Future Modifications and Plans

None.

14. Software

14.1 Software Description

BORIS staff tabulated the needed information in Microsoft Excel spreadsheet files and used the output spreadsheets to load the data base tables.

14.2 Software Access

Microsoft Excel is commercially available.

15. Data Access

Note that the maps are not contained on the BOREAS CD-ROM set. An inventory listing file is supplied on the CD-ROM to inform users of the maps that are available. This inventory listing is available from the Earth Observing System Data and Information System (EOSDIS) Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC). For hardcopies of the individual maps, contact the sources provided in Section 7.3.4.

15.1 Contact Information

For BOREAS data and documentation please contact:

ORNL DAAC User Services
Oak Ridge National Laboratory
P.O. Box 2008 MS-6407
Oak Ridge, TN 37831-6407
Phone: (423) 241-3952
Fax: (423) 574-4665
E-mail: ornldaac@ornl.gov or ornl@eos.nasa.gov

15.2 Data Center Identification

Earth Observing System Data and Information System (EOSDIS) Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC) for Biogeochemical Dynamics http://www-eosdis.ornl.gov/.

15.3 Procedures for Obtaining Data

Users may obtain data directly through the ORNL DAAC online search and order system [http://www-eosdis.ornl.gov/] and the anonymous FTP site [ftp://www-eosdis.ornl.gov/data/] or by contacting User Services by electronic mail, telephone, fax, letter, or personal visit using the contact information in Section 15.1.

15.4 Data Center Status/Plans

The ORNL DAAC is the primary source for BOREAS field measurement, image, GIS, and hardcopy data products. The BOREAS CD-ROM and data referenced or listed in inventories on the CD-ROM are available from the ORNL DAAC.

16. Output Products and Availability

16.1 Tape Products

None.

16.2 Film Products

None.

16.3 Other Products

The maps referenced here exist in hardcopy form.

17. References

17.1 Platform/Sensor/Instrument/Data Processing Documentation

None.

17.2 Journal Articles and Study Reports

Newcomer, J., D. Landis, S. Conrad, S. Curd, K. Huemmrich, D. Knapp, A. Morrell, J. Nickeson, A. Papagno, D. Rinker, R. Strub, T. Twine, F. Hall, and P. Sellers, eds. 2000. Collected Data of The Boreal Ecosystem-Atmosphere Study. NASA. CD-ROM.

Sellers, P. and F. Hall. 1994. Boreal Ecosystem-Atmosphere Study: Experiment Plan. Version 1994-3.0, NASA BOREAS Report (EXPLAN 94).

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17.3 Archive/DBMS Usage Documentation

None.

18. Glossary of Terms

None.

19. List of Acronyms

ASCII	- American Standard Code for Information Interchange
BOREAS	- BOReal Ecosystem-Atmosphere Study
BORIS	- BOREAS Information System
CCRS	- Canada Centre for Remote Sensing
DAAC	- Distributed Active Archive Center
EOS	- Earth Observing System
EOSDIS	- EOS Data and Information System
GIS	- Geographic Information System
GSFC	- Goddard Space Flight Center
NAD83	- North American Datum of 1983
NASA	- National Aeronautics and Space Administration
NSA	- Northern Study Area
ORNL	- Oak Ridge National Laboratory
PANP	- Prince Albert National Park
SSA	- Southern Study Area
URL	- Uniform Resource Locator
UTM	- Universal Transverse Mercator

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BOREAS hardcopy maps are a collection of approximately 1,000 hardcopy maps representing the physical, climatological, and historical attributes of areas covering primarily the Manitoba and Saskatchewan provinces of Canada. These maps were collected by BORIS and CCRS staff to provide basic information about site positions, manmade features, topography, geology, hydrology, land cover types, fire history, climate, and soils of the BOREAS study region. These maps are not available for distribution through the BOREAS project but may be used as an onsite resource. Information is provided within this document for individuals who want to order copies of these maps from the original map source.

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